

What is claimed is:

Claim 1: A method of manufacturing semiconductor integrated circuit devices, comprising the steps of:

- (a) forming a photoresist film on a main surface of a wafer;
 - (b) mounting the wafer provided with the photoresist film on a wafer stage of an exposure apparatus;
 - (c) exposing a first phase shift mask pattern having phase errors or random defects on a first region of the main surface of the wafer mounted on the wafer stage by reduction projection exposure using ultraviolet light; and
 - (d) after the step (c), exposing a second phase shift mask pattern formed over the same main surface of the same wafer as the first phase shift mask pattern, on the first region of the main surface of the wafer mounted on the wafer stage by reduction projection exposure using ultraviolet, the second phase shift mask pattern having phase errors or random defects, and a phase thereof inverted from a phase of the first phase shift mask pattern;
- wherein the first and second phase shift masks have an area having a plurality of hole patterns and another area having a hole pattern surrounded by auxiliary patterns

Claim 2: A method according to claim 1, wherein the steps (c) and (d) are exposed by scanning exposure.

Claim 3: A method according to claim 1, wherein the first and second

phase shift masks have a substrate groove shifter.

Claim 4: A method according to claim 1, wherein a lighting of the reduction projection exposure is a deformation lighting.

Claim 5: A method according to claim 4, wherein the deformation lighting is an oblique lighting.

Claim 6: A method according to claim 4, wherein the deformation lighting is a bracelet-lighting.

Claim 7: A method of manufacturing semiconductor integrated circuit devices, comprising the steps of:

- (a) forming a photoresist film on a main surface of a wafer;
- (b) mounting the wafer provided with the photoresist film on a wafer stage of an exposure apparatus;
- (c) exposing a first phase shift mask pattern having phase errors or random defects on a first region of the main surface of the wafer mounted on the wafer stage by reduction projection exposure using ultraviolet light; and
- (d) after the step (c), exposing a second phase shift mask pattern as the first phase shift mask pattern, on the first region of the main surface of the wafer mounted on the wafer stage by reduction projection exposure using ultraviolet, the second phase shift mask pattern having phase errors or random defects, and a phase thereof inverted from a phase of the first phase shift mask pattern;

wherein the first and second phase shift masks have an area having a plurality of hole patterns and another area having a hole pattern surrounded by auxiliary patterns.

Claim 8: A method according to claim 7, wherein the steps (c) and (d) are exposed by scanning exposure.

Claim 9: A method according to claim 7, wherein the first and second phase shift masks have a substrate groove shifter.

Claim 10: A method according to claim 7, wherein a lighting of the reduction projection exposure is a deformation lighting.

Claim 11: A method according to claim 10, wherein the deformation lighting is an oblique lighting.

Claim 12: A method according to claim 10, wherein the deformation lighting is a bracelet-lighting.

Claim 13: A method of manufacturing semiconductor integrated circuit devices, comprising the steps of:

- (a) forming a photoresist film on a film to be processed formed on a main surface of a wafer;
- (b) mounting the wafer provided with the photoresist film on a wafer stage of

an exposure apparatus;

(c) exposing a first phase shift mask pattern having phase errors or random defects on a first region of the main surface of the wafer mounted on the wafer stage by reduction projection exposure using ultraviolet light; and

(d) after the step (c), exposing a second phase shift mask pattern formed over the same main surface of the same wafer as the first phase shift mask pattern, on the first region of the main surface of the wafer mounted on the wafer stage by reduction projection exposure using ultraviolet, the second phase shift mask pattern having phase errors or random defects, and a phase thereof inverted from a phase of the first phase shift mask pattern;

wherein the first and second phase shift masks have an area having a plurality of hole patterns and another area having a hole pattern surrounded by auxiliary patterns.

Claim 14: A method according to claim 13, wherein the steps (c) and (d) are exposed by scanning exposure.

Claim 15: A method according to claim 13, wherein the first and second phase shift masks have a substrate groove shifter.

Claim 16: A method according to claim 13, wherein a lighting of the reduction projection exposure is a deformation lighting.

Claim 17: A method according to claim 16, wherein the deformation

lighting is an oblique lighting.

Claim 18: A method according to claim 16, wherein the deformation lighting is a bracelet-lighting.